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19 JUNE 1986

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

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CONTENTS

EAST EUROPE

HUNGARY

LATIN AMERICA

BRAZIL

NEAR EAST/SOUTH ASIA

REGIONAL AFFAIRS

EGYPT

/6539

DENMARK, GDR AGREE ON NUCLEAR DISASTER WARNING ARRANGEMENT

Copenhagen BERLINGSKE TIDENDE in Danish 1 May 86 p 2

[Article by Per Lyngby: "Nuclear Power Agreement With GDR Ready Today"]

[Text] Environment Minister Chr. Christensen (Christian Democrat) and East German permanent secretary Georg Sitzlach this morning will put the finishing touches on a warning agreement which will guarantee Denmark complete openness in case of an East German nuclear power plant accident. The Environmental Commission is investigating areas in Denmark for radioactivity in connection with the Soviet accident.

Environmental Minister Chr. Christensen and East German permanent secretary Georg Sitzlach have agreed that a possible East German nuclear power plant accident should be reported to Denmark "openly and immediately" in order to prevent the formation of rumors and in order to allow for the making of necessary arrangements. The agreement will be signed this morning.

Governments Advised Today

The Environment Minister gave the foregoing information to BERLINGSKE TIDENDE yesterday evening. He did not want to lift the veil of secrecy surrounding the Danish-East German agreement until after the parties first had advised the Danish and East German governments. That is to occur this morning.

"The negotiations have occurred in a very positive atmosphere and we have achieved clarifications with which we in Denmark can be completely satisfied," Chr. Christensen said after having negotiated during the entire evening with Georg Sitzlach at the East German Embassy in Copenhagen.

Public Should Not Be Frightened

With the Soviet nuclear power plant accident as the starting point, the two negotiators agreed that openness should be fostered in such a situation in order that the public not be frightened unnecessarily.

The environmental minister therefore is "thankful" that the Soviet ambassador in Stockholm has given assurances that in the future the Soviet Union will advise Denmark, among others, of every nuclear power plant problem.

12578
CSO: 5100/2522

CANADA

RADIATION REPORTED IN WAKE OF CHERNOBYL INCIDENT

Italian Salad Fixings

Ottawa THE CITIZEN in English 8 May 86 p A6

[Text]

The federal government issued a customs alert Wednesday for all European imports of fresh produce after a load of radioactive Italian salad fixings turned up in Vancouver.

As well, Health Minister Jake Epp admitted Wednesday the government has ordered fresh milk in supermarkets be tested for fallout from the accident.

The customs advisory instructs customs officials to hold all shipments of fresh fruit, vegetables and herbs of European origin for Health Department tests, spokesman Carole Peacock said.

As well, the government wants to know about any European shipments of other fresh food, including dairy products, so officials can decide whether they, too, should be tested for radioactivity.

The federal health department has decided to destroy 273 kilograms of the northern Italy produce because it contained radioactive Iodine-131, a product associated with the Chernobyl accident. Radioactive iodine can be taken up by the thyroid gland.

The produce included several kinds of specialty lettuce, specialty mushrooms and sun-dried tomatoes.

The mushrooms contained radioactivity measuring 2,300 becquerels per kilogram, more than 200 times the safe limit of 10 becquerels per kilogram. The lettuce was within the safe limit and the tomatoes were fine. A becquerel is another measure of radiation. Because the produce is for specialty markets and was unwashed, the average consumer need not worry, she said.

But Epp insisted Canadians have nothing to worry about.

The government wants to "err on the side of prudence," Epp told reporters by telephone from Geneva where he is attending a conference of the World Health Organization.

As a result of the discovery of exceptionally high levels of radioactivity in part of the Italian shipment, the department is extending its health advisory for European travellers to include much of southern Europe.

Travellers to the following countries should not drink fresh milk and should wash all fresh fruit and vegetables: the western Soviet Union, Poland, Romania, Hungary, Czechoslovakia, Greece, Yugoslavia and Italy.

The government's travel warning remains in effect. No one should visit Kiev. Pregnant women and children under the age of 16 should avoid travel to the western Ukraine and eastern Poland, including Warsaw. Expectant mothers and young children bear the greatest health risks associated with radiation poisoning.

Rainwater Measurement

Toronto THE GLOVE AND MAIL in English 9 May 86 pp A1, A2

[Article by Warren Caragata]

[Text]

Don't drink rainwater, the Government is warning Canadians after finding that rain in Ottawa this week contained radioactive iodine in amounts six times higher than federal standards allow in drinking water.

The advisory applies across the country, even though Ottawa is the only location so far where radiation has been detected in rain, a federal official said yesterday.

But Health Minister Jake Epp said from Geneva that although the rainwater radiation levels are high there is "absolutely no danger to people taking a bath in rainwater or children playing in the rain." And someone drinking the contaminated rain for a lifetime would increase the risk of cancer by only one in one million, he said.

"All of us were hoping that we Canadians would not be affected by the fallout from Chernobyl," Mr. Epp told reporters in a telephone interview from Geneva, where he is attending a meeting of the World Health Organization.

In addition to the radioactivity in rain, airborne radiation from the Soviet nuclear accident at Chernobyl has been detected in Western Canada, Toronto and Ottawa, although in minute amounts that Dorothy Meyerhof, an official with the radiation-protection bureau of the federal Health Department, said were only of "scientific curiosity."

The levels of iodine-131 in the rain were more than 10,000 times the normal level of radioactive substances found in water in the Great Lakes, she said.

The radioactive rain turned up in testing in Ottawa over a 24-hour period ending at 10 a.m. Wednesday. Iodine-131 was present in a concentration of 60 becquerels per litre. The drinking-water standard is 10 becquerels per litre. A becquerel is a measure of how radioactive a substance is.

Ms Meyerhof said the normal background level of radiation in the Great Lakes for cesium-137, another element associated with nuclear accidents and nuclear weapons tests, is one ten-thousandth of a becquerel.

Radioactive iodine is not found in background levels except after an accident or an atmospheric weapon test because it lasts only a matter of weeks. Half of it decays away every eight days.

It is considered a health hazard because it is taken up by the thyroid gland, which cannot distinguish between normal iodine and its radioactive cousin.

However, Mr. Epp said there is no need for Canadians to take iodine pills to block the intake by the thyroid.

The airborne radiation in Western Canada was measured on Tuesday. The test was run on filters from monitoring stations in Vancouver, Calgary, Edmonton, Hay River, NWT, Regina, Saskatoon and Whitehorse.

In that combined sample, iodine-131 was present in an amount measuring .0004 becquerels per cubic metre of air. But Ms Meyerhof said that the way the test is done it is impossible to say how precise the number actually is and whether the iodine was present in all the locations, or only one.

In air monitoring on Wednesday, the department measured iodine-131 in Ottawa, Toronto and Winnipeg in average concentrations of about 0.02 becquerels per cubic metre. That is about 20 times greater than the normal background level of 0.001 becquerels per cubic metre. Again, the samples from all three cities were combined so it is impossible to say whether the iodine showed up in all three locations or only one.

"That's just 20 times a little, wee number," Ms Meyerhof said, and this amount is in no way considered a health hazard.

Mr. Epp said the numbers are very low and resemble results in Canada after China tested an atomic bomb in the atmosphere in 1980.

The numbers are far below the radiation during the early 1960s when atmospheric nuclear tests were common, Ms Meyerhof said.

Testing at the rest of the 28 monitoring stations across the country on Wednesday has not turned up any radioactivity, she said.

The department is testing rainwater at the same 28 sites, but has not yet received results except for Ottawa.

Milk also is being tested. The first results are expected today.

Hector Cowan, an External Affairs Department official dispatched from the embassy in Moscow to Kiev last week to arrange for the departure of a group of Canadian students in the city, is being brought home to Ottawa for medical tests.

He received a checkup on his return to Moscow yesterday. Department spokesman Natalie Kirschberg said the results of that test are private.

Except for three students who have decided to stay and one who is planning to leave next week, all the students now have left the Ukrainian capital, 130 kilometres south of the Chernobyl nuclear power plant where an accident April 26 spewed clouds of radioactive material into the atmosphere.

The Government has changed its travel advisory for tourists in Eastern Europe.

No one should travel to Kiev and an area 400 kilometres around the city.

Travel to other areas in the Soviet Union is safe, even for those who are pregnant and under the age of 16, the two groups with the greatest risk of health problems from radiation.

However, people travelling in southern and eastern Europe should not drink milk and should wash all fresh fruit and vegetables, the Government warns. The countries

include the western Soviet Union, Poland, Romania, Hungary, Czechoslovakia, Greece, Yugoslavia and Italy.

Mr. Cowan had spent about a week in Kiev and a considerable amount of time outside, Ms Kirschberg said.

He is expected to arrive in Ottawa today.

Levels in Milk Samples

Toronto THE GLOVE AND MAIL in English 16 May 86 p A5

[Text]

OTTAWA

Low levels of radiation from the Soviet nuclear accident now have been found in milk in Toronto, Ottawa and Fredericton, federal health authorities said yesterday.

Radiation from the accident site, more than 7,000 kilometres away, has been detected in rain and air samples across the country, from St. John's to Vancouver and from Windsor to Inuvik.

The concentrations of radioactive iodine-131 found in milk samples tested by the federal Government "do not present a health risk," said Carole Peacock, a spokesman for the radiation protection bureau in the federal Health Department.

The concentration of radioactive iodine has increased in Ottawa milk.

Customs officers have seized a shipment of French lettuce and herbs in Toronto that exceeded new guidelines on radiation levels in fresh produce. The new standard is 70 becquerels per kilogram.

Testing of Canadian-grown produce has so far turned up no radiation.

While government scientists tracked the fallout from the April 26 accident, which the experts say is the most serious in the history of atomic power, MPs in the Commons debated a New Democratic Party motion calling for a public inquiry into the nuclear industry in Canada.

Energy Minister Pat Carney ruled out such an inquiry, saying it would be useless until all the information about the Chernobyl accident has come in.

But "serious nuclear power accidents in Canada are extremely unlikely," she said.

The Government is "fully committed to sustaining the Candu reactor as a safe, reliable and competitive nuclear power system," she said.

New Democrat James Fulton, who proposed the motion, said a meltdown at one of the 18 reactors in Canada over their operational lifetimes is "as likely as rolling a 12 with two dice."

Mr. Fulton said that the Conservatives had promised during the 1984 election that there would be an inquiry.

Milk samples taken Wednesday in Ottawa and Toronto showed the following concentrations of iodine-131: Toronto, 0.4 becquerels per litre; Ottawa, 0.5 becquerels per litre. A sample taken Tuesday in Ottawa had a level of 0.06, about 10 times lower.

In Fredericton, milk sampled Tuesday had a level of 0.3 becquerels per litre. At one becquerel per litre, one atom of iodine is decaying, and releasing radiation, every second. However, health officials say it is a very small unit of measurement.

The maximum acceptable level in milk is 10 becquerels per litre, about 20 times above the level found in Ottawa.

In 1964, when nuclear fallout was circling the globe because of atmospheric weapons tests, the maximum concentration of iodine-131 detected in milk was 3 becquerels per litre, six times higher than the latest Ottawa result.

Levels of iodine-131 in the air have increased in Ottawa, Vancouver, Saskatoon, Regina and Winnipeg. Levels have fallen in Edmonton, Calgary, Toronto, Windsor, Fredericton and St. John's, Nfld.

Levels on Tuesday ranged between a high of 0.02 becquerels per cubic metre of air in the Regina-Saskatoon testing area to a low of 0.003 detected in the Toronto-Windsor area and Fredericton. The level in St. John's that day was zero, down from 0.0006 the day before.

In Vancouver, rain-washed radiation levels dropped from 68 becquerels per litre on Monday to 28 becquerels per litre Tuesday.

Other levels in rainwater sampled Monday were: Edmonton 18, Terrace, B.C., 11, Prince George 10, Inuvik 18.

In rainwater for the six days ending Tuesday, the following levels, measured in becquerels per litre, were found: Calgary 16, Halifax 13, Thunder Bay 12, Saskatoon 6, Hay River, NWT, 6, St. John's 5, Greenwood, N.S., 5, Quebec City 4, Winnipeg 4, Regina 3.

Miss Carney, who is the minister responsible for nuclear energy in Canada, said an accident identical to Chernobyl "cannot happen in Canada" because of significant design differences between Candu and Soviet reactors.

/9274
CSO: 5120/37

CANADA

EMERGENCY MEASURES CONSIDERED IN CASE OF PICKERING ACCIDENT

Information Kits

Toronto THE TORONTO STAR in English 12 May 86 p A6

[Text] Information packages telling people what to do in case of an accident at the Pickering nuclear power station will be distributed next month, an emergency planner says. Ontario Hydro will pay the $10,000 cost of the packages.

The packages will go to 30,000 to 50,000 households within a 10-kilometre (6.2-mile) radius of the plant on Lake Ontario, says Faroukh Ali, head of plans and operations for the emergency planning department of the solicitor-general's ministry.

Antiradiation Pills

Toronto THE TORONTO STAR in English 15 May 86 p A7

[Article by Stan Josey]

[Text]

Durham Region is considering giving out anti-radiation pills to about 10,000 households near the Pickering nuclear plant.

In the wake of the nuclear plant disaster at Chernobyl in the Soviet Union, the mayors of the region's eight municipalities yesterday voted to consider mass distribution of a pill designed to protect the thyroid in case of a nuclear accident.

(The thyroid is an important ductless gland in the neck that produces a hormone regulating growth and metabolism).

The potassium iodide (KI) pills have long been the subject of controversy. Critics say that the pills protect only the thyroid, when other organs can also be damaged from radiation.

The potassium iodide is designed to block the absorption of radioactive iodine by the thyroid.

The move by the mayors, who make up the region's management committee, follows last week's call by regional council for mass distribution of evacuation information to Pickering residents.

Dr. Jean Gray, the region's medical officer of health, recommended in her report to the management committee mass distribution of the pills.

However, members of Emergency Planning Ontario have recommended against pre-distribution, saying it would be hard to ensure that all households have the pills and that residents know where the pills are at the time of an accident.

/9274
CSO: 5120/38

CANADA

ONTARIO WILL NOT BLOCK SALE OF TRITIUM TO UNITED STATES

Toronto THE GLOVE AND MAIL in English 13 May 86 p A23

[Article by Linda McQuaig]

[Text]

Energy Minister Vince Kerrio indicated yesterday that the province would not try to prevent Ontario Hydro from selling radioactive tritium to the United States, even if such sales increased the amount of tritium available for U.S. nuclear weapons.

Mr. Kerrio told reporters outside the Legislature that he would oppose the sale of tritium by Hydro for purposes other than those related to medical research.

However, Mr. Kerrio left open the possibility that the purchase of Canadian tritium could allow the United States to divert some of its own tritium to weapons use — a common charge by those opposed to such sales.

"I'm not sure that I would be involved in trying to tell the United States of America how to run that big nation," Mr. Kerrio said.

"I can't be somebody else's keeper," the minister added. "I can only decide what our tritium is used for."

Mr. Kerrio also said that he did not think he had the power as energy minister to block the sale.

"Hydro is an entity unto itself," he said.

NDP Leader Bob Rae said that Mr. Kerrio does have the power and he urged the Government to prevent Hydro from selling tritium.

"I don't think selling it to the United States — when there's an enormous market for tritium for military purposes — is something Ontario should be doing."

Hydro is planning to extract four kilograms of tritium a year, which is between eight and 20 times the amount needed in the world for non-military purposes, Mr. Rae said.

The federal Atomic Energy Control Board approved the sale of Canadian tritium last March. The AECB set out guidelines that it said were designed to prevent the Canadian tritium exports from being used for the production of nuclear weapons.

Hydro is building a $30-million tritium extraction plant as part of its Darlington nuclear plant to prevent the unsafe disposal of tritium, which is a byproduct of nuclear energy production.

Hydro chairman Thomas Campbell has said that Hydro may be able to sell $20-million worth of tritium a year, mostly to the United States.

/9274
CSO: 5120/39

REVIEW OF URANIUM EXPORT, FOREIGN OWNERSHIP POLICY URGED

Toronto THE GLOVE AND MAIL in English 14 May 86 p B8

[Article by Bud Jorgensen]

[Text]

MONTREAL

With the nuclear power plant disaster at Chernobyl fresh in everyone's mind, people in the uranium business have a difficult job promoting their product.

Nuclear energy had image problems even before the Soviet accident, but Gerhard Glattes, the chairman of Uranerz Exploration and Mining Ltd. of Saskatoon, argues that Canadian producers should be moving aggressively to consolidate their position as the Western World's No. 1 supplier of uranium.

Mr. Glattes said Canada should be reviewing its foreign ownership policy and its restrictions on exporting unprocessed uranium.

The Chernobyl explosion and fire should have little impact on Western uranium demand, Mr. Glattes said, because the Soviet Union had outdated technology and no containment procedures at the Chernobyl site.

"The situation there is like driving a car with no brakes," he said in a speech at the annual meeting of the Canadian Institute of Mining and Metallurgy.

In Western countries, the situation is much different as a result of the radiation leak at Three Mile Island, Penn., in 1979. After that accident, there was a thorough review of operating and safety procedures at nuclear generating stations in Western industrial countries.

Another result of the Three Mile Island accident was that several power plant projects were cancelled or delayed. Uranium producers had geared up in the expectation that nuclear power would replace hydrocarbon plants as coal and oil became more scarce and more expensive.

After several years of overproduction, however, the uranium market got back into balance in 1984, when supply and demand were roughly equal. Last year, Western customers bought 104 million pounds of uranium oxide and production was 94 million pounds. (Uranium oxide is the unprocessed mine product that is commonly known as yellowcake.)

Canada provided 31 per cent of total Western world production, with 11.7 million pounds coming from Ontario and 14.4 million from mines around Uranium City in northern Saskatchewan.

The Saskatchewan mines are generally high grade, low-cost operations and the area has substantial reserves. One deposit that would be an underground mine if developed is so high in grade that there would be severe restrictions on the amount of time workers spent in the mine because of radiation dangers.

In pressing a case for a freer market in uranium, Mr. Glattes provided the perspective of the foreign customer. His company, Uranerz, is 50 per cent owned by a subsidiary of West Germany's largest electrical utility, RWE, and 50 per cent owned by a subsidiary of Preussag AG. In West Germany, nuclear power accounts for 36 per cent of electricity generated by public utilities.

"Uranium buyers put much emphasis on long-term security of supply," Mr. Glattes said. That means they look for politically stable sources and are eager to take an equity interest in mines.

A measure of concern about supply is the willingness of several countries to invest in fast-breeder reactors, nuclear plants that are more expensive to build but are much more fuel efficient than the Candu reactor built in Canada, Mr. Glattes said.

Canadian ownership rules limit foreign participation to 33 per cent. Under certain conditions, the foreign stake could go as high as 50 per cent.

Uranerz is a joint-venture partner in the Key Lake project, the world's largest uranium mining operation. Its partners are provincially owned Saskatchewan Mining Development Corp. and Eldor Resources Ltd., a federal Crown corporation. Key Lake produced 11.1 million pounds of uranium oxide last year, which was 12 per cent of total Western world production.

Few Canadian resource companies are willing to explore and develop uranium prospects because of the uncertainties surrounding the current market situation, Mr. Glattes said.

Mr. Glattes said the United States is a market that the Canadian producers should be courting now. The other major markets with potential for Canadian producers are Europe and Japan, he said.

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CSO: 5120/39

CANADA

MISSING URANIUM FUEL PENCIL SOUGHT AT BRUCE A

Toronto THE GLOVE AND MAIL in English 14 May 86 p A22

[Article by Thomas Claridge]

[Text]

A pressure tube that ruptured in a reactor at Ontario Hydro's Bruce A Generating Station on March 28 has been removed and shipped to Chalk River, Ont., but one of six uranium fuel pencils that escaped through the crack is apparently still missing inside the reactor.

The job of finding the small, intensely radioactive cylinder and replacing the pressure tube is expected to take about a month, but a Hydro spokesman acknowledged yesterday that the shutdown could be a lot longer if inspection of the failed tube raises concerns about the condition of 479 other pressure tubes in the reactor.

Although the pressure tube and most of the fuel it contained have been removed, a thin-walled outer calandria tube that also was cracked in the rupture is still intact and serving as a temporary collector of fuel debris.

The spokesman, Michael Williams, said the immediate task confronting work crews is removal of part of a fuel pencil known to be lying on the bottom of the reactor. The plan is to reach the pencil with a grappling device inserted from the top of the reactor, raise it to the broken calandria tube and drop it through the wide crack atop the tube.

Then the debris inside the calandria tube is to be swabbed out and the tube removed and shipped to the Chalk River Nuclear Laboratories of Atomic Energy of Canada Ltd., where a metallurgical inspection of the pressure tube is already under way.

Mr. Williams said he expects the inspection will take about four more weeks, about the same time it will probably take to clean up the reactor and install the new tube assembly.

Asked about predictions by Hydro officials on the site that the Unit 2 reactor will be back in operation by June 14, Mr. Williams said he regards the date as "the earliest possible if everything goes smoothly."

The AECL official in charge of the research work at Chalk River said flasks containing the final two sections of pressure tube arrived at the laboratories yesterday morning.

Brian Cheadle, head of AECL's metallurgical engineering branch, said the first phase of the testing will be aimed at determining levels of stress at the point where the rupture is believed to have started.

He explained that in the presence of high metallurgical stress, a pressure tube that had developed a tiny crack could rupture when subjected to high pressure at low temperatures.

That was the condition in the Bruce reactor when the tube split. Operators who were having difficulty tracing a small heavy-water leak inside the reactor had decided to raise pressures inside the pressure tubes without heating up the heavy-water coolant in the tubes.

Dr. Cheadle said the second phase of the investigation will be microscopic analysis of the tube wall aimed at locating the precise point where the crack started and determining whether the tube had high levels of deuterium, a hydrogen isotope that tends to build up in the tubes.

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CSO: 5120/39

HUNGARY

PAKS NUCLEAR PLANT BLOCK 3 FAILS TO MEET DEADLINE

Budapest MEPSZAVA in Hungarian 17 Apr 86 p 4

/Article by Tibor Flanek: "Finishing the Third One"/

/Text/ According to the official deadline the third block of the Paks Nuclear Power Plant should already be in its 4th month of producing electricity, but--according to the way things now stand--we will still have to wait another 5 months for this. The delay of three-quarters of a year will cost the country the price of 700,000 tons of oil--or of another energy source with equivalent heating value.

What caused this sizable lag? Undoubtedly late deliveries by the foreign supplying partners were part of it, but weaknesses in planning and in the investment's technical preparations were also factors. These were not unknown to the power plant's builders even in the fall of 1984 when they celebrated the successful delivery of the second block before the deadline.

Since then a wave of emotion has swept through those who invest in Paks: last summer the general manager of the Hungarian Electrical Works Trust decided that instead of the Power Plant Investment Enterprise /ERBE/ the Paks Nuclear Power Plant Enterprise /PAV/, which operates the plant, should carry on the investment. But after some hot days and weeks emotions did cool off, and today about 600 onetime ERBE employees are working under the PAV's colors on at least delivering a flawlessly operating block by the unofficial September deadline.

Inherited Delay

"Are you progressing better now?"--I asked Janos Marton, head of the PAV's newly created investment directorate.

"The most important thing is that the arguments have ceased. The conflicts of interest which in the past pitted the ERBE and the PAV against each other have disappeared. The investor--understandably--urged delivery as soon as possible, but we considered quality to be of prime importance. Because of this we were often accused of riding the brake pedal, slowing down the work. I must admit we really did that when we saw quality being endangered, because we want a properly operating power plant rather than appearances of results. There were arguments because of this. But in the new situation, work is progressing without dissension according to our quality standards, and we are working more smoothly."

"Also faster?"

"I would not say that."

The new investment organization cannot do much any more with the inherited delay. In fact, it is not a small accomplishment that while the investment directorate, the eight chief engineering departments, and the auxiliary departments were being set up investment continued to progress at a smooth pace.

Decisive Operations

"In mid-December, when we were at a higher degree of technical preparedness than in the case of the first two blocks, we began the circulatory washing-out of the third block," says the investment director. "Beginning with this a whole series of very sensitive technical operations follows and this in effect determines the point in time when we can connect this block to the national network."

The circulatory washing was completed in less time than planned, and was followed by the first checking of the main equipment. Then on 20 March the so-called warm operation began: the entire system is running at operating pressures and temperatures, except that the nuclear heating elements have not yet been installed. The warm operation is still going on, as indicated by the rumbling heard from the depths near the turbines, which are not operating yet but which have been tested with external steam.

"We were 10 days late with this operation"--Janos Marton observes.--"But there is an explanation for it. The third block will be operating with Hungarian process control computers, with the KFKI's /Central Research Institute of Physics/ model TPA-440 machines and the MMG's /Measuring Instruments Factory/ machines. Developing the problemsolving program system and starting it up was a huge and new kind of job for the KFKI's and VEIKI's /Electric Power Industry Research Institute/ technicians. This took longer than planned.

Even so the warm operation will be completed around the 20th of April. After that the main equipment will be disassembled and rechecked for 40 days. Then they will reassemble it again and the solidity test of the 40,000 cubic meter hermetic space will begin with overpressurization. If no faults are found here either, the uranium heating elements can be inserted into the reactor and the so-called physical startup can begin.

"We are planning this for the 10th of August"--Janos Marton explains.--"After that the physicists take the necessary measurements, and we start up the reactor with a 3 percent load and test of the steam generator's safety valve. If all this goes successfully, the parallel hookup can take place. But I am not saying this in the conditional without reason: if we find problems anywhere, it means a loss of time."

/Flanek/ That is, parallel hookup of the third block may be expected for September....

"Yes. Do not ask for a more precise date. We can perhaps gain a few days but there are still very many uncertain factors. In the case of the second block, 270 days passed between the startup of the circulatory washing and the parallel hookup. We would like to do that here, too."

So the third 440 megawatt block of the Paks Nuclear Power Plant will hardly be able to supply any electricity before the last days of September, or at best by the end of August.

But having seen the millions of problems to be solved en route, it would be difficult to blame those who, while battling daily with foreign delays shipment and with the weaknesses in the plans and technical preparation, toil and make relentless demands even on themselves so that there will be a well-functioning, reliable nuclear power plant in Paks.

Among the World's Elite

Because the first two blocks are like that. Even on the coldest days of last year's memorable winter the Paks Nuclear Power Plant provided electricity with 94 percent capacity utilization when the country's other power plants were far from being able to produce at this level. It can be attributed to this very reliability that last year the two blocks, which represent barely 15 percent of the country's power plant capacity, furnished almost one-fourth of the country's electricity production. But the most recent data also say a lot: in the first quarter of this year the "availability" of block 1 was 99.96 percent and of block 2, 100.04 percent, that is, it exceeded its nominal capacity. With these indices the Paks Nuclear Power Plant surpasses all nuclear power plants of the CEMA countries, and it is one of the top 5 or 10 in the world among similarly sized nuclear power plants operating on the same principle. If block 3 and block 4 also turn out like this, with their reliable production surpassing their nominal capacity, they may counterbalance the losses caused by the delay. They can prove that there is something even more important than meeting the deadline--that is, striving for quality.

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CSO: 5100/3036

BRAZIL

UNLIKELIHOOD OF CHERNOBYL-LIKE ACCIDENT AT ANGRA DISCUSSED

Rio de Janeiro MANCHETE in Portuguese 24 May 86 pp 28-34

[Article by Claudio Figueiredo:"Could Chernobyl Happen in Brazil?"]

[Text] The accident at the Soviet power plant in Chernobyl evoked the same question all over the world, asked in the most varied languages: How dangerous are nuclear power plants, and what specific risks do they pose? Among us, the attention has been turned to our only operating nuclear power plant, on the shore of Itaorna, in Angra dos Reis, in the state of Rio: Angra I (the first one to be built of the three called for in the Brazilian nuclear program) produced 8.5 percent of the power generated for the southeast region of the country last year. And President Sarney, reflecting the overall concern over the matter, a few days after the Chernobyl accident recommended to the Ministry of Mines and Energy that it undertake a careful reexamination of the plant's security conditions.

In Brazil, a single organ holds all the responsibility for the licensing and inspection of nuclear reactors: the Reactor Department of the National Commission for Nuclear Energy (CNEN). Its director, physicist Jose Eduardo Leme Salvatore, explains: "Our mission here is to ascertain whether all the security requirements are being met. In the case of the nuclear power plants, we abide by the Brazilian security regulations, those specified by the International Atomic Energy Agency, with headquarters in Vienna, and, finally, the regulations of the design's country of origin. In the case of Angra I, it is American regulations, because the project was from Westinghouse; and it is German in the case of Angra II and III, which have a design by KWU. Before the licensing of any nuclear facility, there is made what we call an 'accident analysis.' We try to imagine everything that might go wrong in a plant: a pipe that might be perforated, a valve that could be jammed, or a pump that might break. Then, for every operating circuit, we see to it that there are three other spares to be activated in case of emergency."

It is apparently quite difficult to draw a parallel between the Chernobyl plant and Brazil's Angra I, because the two have adopted very different principles. The damaged reactor in Chernobyl was of the LWGR (light water graphite reactor) type; that is, they use water to cool the core, while the role of fission

"moderator" is played by the graphite, a material subject to combustion. This is a technology which came into existence during the 1950's in the Soviet Union, but which is now obsolete, not only in the U.S., Great Britain, and France, but also in the USSR itself, where the more recent power plants have been opting for a different system.

The technology adopted by Brazil is that of PWR (pressurized water reactor) reactors; in other words, reactors using pressurized water. In them, the nuclear fuel is submerged in water; and the water itself, used for cooling the nuclear fuel, acts as a neutron "moderator" to control the so-called "chain reaction." With the proper proportions observed, a power plant of this type operates like a big tea-kettle. The water reaches temperatures exceeding 300 degrees; this radioactive water moves inside watertight piping to the steam generator where it vaporizes the water from the "secondary circuit," without coming in contact with the latter. Then the steam activates the turbines which move the generator, producing electricity. In a third, independent "circuit," there is a system for impounding water from the sea to cool, in the condenser, the steam that has expanded in the turbine. The PWR reactor line, adopted both by the American technology at Angra I and the German technology with which NUCLEBRAS [Brazilian Nuclear Corporations, Inc] is building Angra II and III, is the one used in nearly half the 345 nuclear power plants operating in the world, and in 70 percent of the 180 plants under construction.

The worst accident that could occur in a nuclear power plant would be one caused by the superheating of its core and of the fuel located there. In the case of Angra I, this would occur if there were a loss of pressurized water used to cool the core. The director of the Reactor Department, Leme Salvatore, explains: "This is quite unlikely, because we have various systems for injecting water into the core. But, based on the hypothesis that all systems can fail, the superheating of the fuel could occur, which would lead to the fusion of the uranium contained therein. The result of this could be an explosion: not a nuclear one, to be sure, which is completely impossible in a plant. It would be an explosion similar to that of a steam boiler."

The danger represented by an accident such as this would be less from the explosion per se than from the possible exposure of the radioactive material. The main guarantee against that danger lies in the reactor building of cylindrical shape, made entirely of concrete, with walls 60 centimeters thick, and in the so-called "containment vessel", another inner wall with steel walls 5 centimeters thick. That is another basic difference from the Chernobyl plant, which apparently does not have a similar security device, and had been housed in an ordinary industrial building.

Physicist Leme Salvatore explains: "In our case, assuming that all the options failed and an explosion occurred, all the radioactive material would be retained in the 'containment vessel.' This, moreover, was exactly what happened at the American plant at Three Mile Island, where there was no major damage to the environment. There, the plant has been at a standstill to date, the radioactivity levels are gradually declining and it is being decontaminated little by little, with a long term program."

Despite the explanation, one question still remains: If the "containment vessel" is the only guarantee for preventing contact of the radioactive material with the environment, couldn't it be broken by an explosion? According to the Reactor Department director, it could not: "The vessel has been built and tested to withstand a steam explosion of that type. During its construction, it is subjected to a test which must be repeated regularly later. We are not simulating an explosion, per se, but, through pressurized pumps, we subject the vessel to a pressure equivalent to that from an explosion of that type." The structures and foundations of Angra I have been planned to withstand the explosion of large dynamite charges and even earthquakes; although the posssibility of quakes in the region is virtually nil. According to the NUCLEBRAS technicians, those security standards mean that, if an earthquake were to occur there, and the towns of Angra and Parafati were destroyed, the only buildings that would still remain standing and intact would be the nuclear power plants. Nevertheless, the security standards for the Angra II and III projects have not met the stringency required in West Germany where, because of the high density of military flights, the reactor walls have been planned to withstand even the impact from a Phantom type plane.

But what if we consider the unlikely possibility that all the security devices failed and that the radioactive material really ended up being discharged from the containment vessel into the environment? For this eventuality, the so-called emergency plans have been devised, which can range from the internal area of the plant, for which the operating company, the Furnas state enterprise, is responsible, to an external plan executed with the cooperation of organs such as the town hall, the state government, the Armed Forces, the Firefighters Corps, and Civil Defense. Each one of those organs has already had the role incumbent on it in this plan determined exactly. Salvatore explains: "Radioactivity tends to disperse from the central point, and hence the emergency plan takes into consideration concentric danger areas measuring 5, 10, and 15 kilometers. Beyond that distance, it is believed that the radioactivity levels would not affect the population, making its evacuation necessary. Obviously, the radiation levels in the environment, in pastures and in agricultural production would have to be controlled."

Those in charge of security at the Angra I power plant hold an important trump card for countering the understandable distrust among the public regarding the Brazilian nuclear facilities; a distrust which only grew after the Chernobyl accident. In August of last year, the International Atomic Energy Agency, with headquarters in Vienna, pursuing its regular program of inspecting all the nuclear power plants in the Western world, sent a team of 12 specialists to Brazil to check the fulfillment of the international security regulations.

Salvatore remarks:"The result of that inspection was a very favorable report, and it contained praise not only for the action of Furnas as operator, but also for CNEN, as an inspecting and licensing organ." According to the state enterprise Furnas, the technicians' report claims that the company, "rather than merely confining itself to meeting the required minimal limits, has been exceeding the international security standards."

Despite all the guarantees, the director of the Reactor Department, Leme Salvatore, admits: "Honestly, and in good conscience, it cannot be claimed that there is a system (not only in nuclear energy, but in any system devised by man) wherein there is absolute security, and there will never even be a failure. This is non-existent, it is unrealistic. An airplane was not made to fall , but once in awhile they fall. It was not made to crash into a hill, but a pilot comes and it crashes. It cannot be claimed that there will never be some kind of accident."

Thoughts like that are most likely shared by some critics of the Brazilian nuclear program. Physicist Enio Candotti, vice president of the Brazilian Association for the Advancement of Science (SBPC), and editor of the magazine SCIENCE TODAY, is among those who think that "nuclear power plants have not yet achieved security standards that would leave scientists, technicians, and the population completely at ease."

Candotti argues: "In other countries, the population has even been consulted about the matter. In the case of countries such as Germany and Sweden, where energy sources are scarce, that rather problematical option for nuclear power was adopted only after long debates.

"In the U.S. where there are alternatives for nuclear power, the construction of new power plants has been suspended because they are also a high risk investment: Imagine the damage represented by a $2 billion plant, such as the one at Three Mile Island, stopping from one hour to the next. In Japan, another country lacking in energy, those plants are being built on far-off islands, quite distant from the population."

But what inspires physicist Enio Candotti in his opposition to the current Brazilian nuclear program is not a youthful inclination toward complete rejection of nuclear power. "It so happens that Brazil is in a rather unique situation with regard to the problem. If we can continue for many more years using conventional energy sources,then why accept the nuclear reactor technology that exists at the moment as the definitive one? Why not make use of that time to investigate and hope for a new technology in that field? Today, Sweden in particular, and Germany itself are working on a new generation of nuclear reactors that will probably be safer than the present ones. I am not opposed to nuclear energy in principle, and I think that it represents a major source of energy. I only think that we must evaluate its risks in rational terms."

The Brazilian nuclear program had already been marking time over a long period, waiting for a decision on the part of the New Republic. To reach a decision, President Sarney had assigned a commission to make a special study of the matter. The work was completed but, ironically, its conclusions (not yet disclosed) were submitted to the president shortly before the accident at Chernobyl. And this incident appears to indicate that, far from ending, that debate is only beginning.

2909
CSO: 5100/2073

BRAZIL

SCIENTIFIC COMMUNITY URGES NEW EVALUATION OF PROGRAM

Brazil Building Similar Reactor

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 30 Apr 86 p 7

[Text] "A smaller amount of radioactivity killed more than 10,000 people at Hiroshima" the physicist Jose Goldemberg, rector of the University of Sao Paulo, warned yesterday in commenting on the serious nuclear accident that occurred in the Soviet Union. Goldemberg urged that the Brazilian nuclear program be reviewed immediately because, according to him, Brazil is building a reactor of the same type as the one at the Chernobyl power station in the Ukraine.

"We need to make a re-examination at the international level to find out whether it is worthwhile to build nuclear power plants even when we are aware of the grave risks they pose," Goldemberg continued. As regards the accident in the USSR, he said he did not know the details but he pointed out that "according to some commentaries, it may have killed thousands of people" because the radioactivity "got outside the building" and affected the civilian population living nearby.

"Furthermore, it formed a cloud of radioactive gases that spread out over northern Europe" he added.

Goldemberg explained that even if it doesn't kill, a nuclear accident can cause leukemia and severe anemia "and also hereditary diseases, such as cancer." These are the serious risks faced by nearby centers of population in the USSR. "But in the next few days, with a change in wind direction, the cloud will dissipate and fall," the scientist said, reassuringly. And he insisted, once again, that "the indications we have are that the Soviet reactors, which certainly caused a leak rather than an explosion, are similar to those used by the Americans and to those built in Brazil."

Risk of Accident at Angra

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 4 May 86 p 14

[Text] Rio de Janeiro--Brazil could have had a nuclear accident at Angra I in October 1983 similar to the one that occurred at Three Mile Island in the United States. That is why the accident at the Chernobyl reactor in the

Soviet Union makes it essential that Brazilian authorities reappraise the German-Brazilian nuclear program and give the public reasonably clear explanations as regards the risks posed by that energy. The warning comes from Enio Candotti, assistant professor of theoretical physics at the Federal University of Rio de Janeiro (UFRJ), in whose view the nuclear program ought to be suspended, future activities limited to research, and the Angra II and III plants "frozen." His proposal even calls for deactivating Angra I, on the grounds that Brazil will not need electricity from nuclear-powered generators before the year 2015.

Mr Candotti recalled that the accidents at Three Mile Island and Chernobyl indicate the care that must be taken in selecting sites for atomic power plants. Under no circumstances should they be near major urban centers. The professor noted that Japan is developing a plan to build nuclear power plants on floating islands far from its cities.

Candotti believes that, despite the differences between the reactor at Chernobyl and the one at Three Mile Island, the two incidents demonstrate that "we are far from achieving the degree of safety and protection proclaimed by the technicians and engineers in the industry." He recounted that an accident very similar to that of Three Mile Island occurred at Angra in October 1983 and just missed exposing the core of the Angra I reactor. That accident was due to a technical failure in the cooling system. The failure was aggravated by defects in the auxiliary cooling pumps in the emergency system. According to Candotti, a disaster identical in scope to the Three Mile Island incident very nearly occurred.

He also pointed out that, although no radioactivity escaped into the atmosphere at Three Mile Island, a thermal explosion could damage the containment vessel, permitting great quantities of radiation to be released. It was "just a miracle," according to the American technicians themselves, that such an explosion did not occur at Three Mile Island.

The UFRJ professor and vice-president of the Brazilian Society for the Advancement of Science (SBPC) indicated that research toward the building of a new generation of reactors, termed "intrinsically safe," is being done in Sweden by Asea Atomic. It would be impossible under any circumstances for the core of such a reactor to be exposed to high temperatures because of a loss of refrigeration. This type of research is also being done by the United States and Germany.

Candotti's interpretation is that if millions of dollars are being spent on this research, it is because the current generation of reactors does not offer the desired degree of safety. To support his argument he cites the fact that no new nuclear power plants have been built in the United States for 8 years now and that after Three Mile Island work on those plants that were under construction was suspended and new orders were canceled.

Prof Candotti shows that nuclear energy is very expensive and the risks extremely high. Losses at Three Mile Island were $2 billion and for the first

time, for different reasons, Wall Street began to agree with the ecologists that nuclear power "is not worthwhile." Furthermore, he believes that modern social movements are very sensitive to nuclear energy.

He also noted that in France, Germany, Sweden, and other European countries there are no viable alternatives since those countries do not have much choice between cold, hunger, or radiation. Brazil's situation is different. Our hydroelectric resources give us 30 years leeway "while we wait for new, safer reactors to be designed."

12830/12795
CSO: 5100/2067

BRAZIL

GOLDEMBERG CITES WEAKNESSES IN RECENT REEVALUATION STUDY

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 4 May 86 p 14

[Article by Jose Goldemberg, rector of the University of Sao Paulo and president of the Joint Commission of the Brazilian Society for the Advancement of Science and the Brazilian Physics Society and responsible for analyzing the nuclear issue within the present Brazilian political context]

[Text] The High Level Commission for Evaluation of the Brazilian Nuclear Program, created by President Sarney and composed of members nominated by Aureliano Chaves, minister of mines and energy, recently concluded its work after 7 months of study. The final report was not released in full; only the conclusions and recommendations were made public.

The commission conducted its studies behind closed doors, but various specialists were called to testify. They represented a wider range of opinions than the commission's six members who, with few exceptions, were not particularly knowledgeable on the subject being analyzed.

This seems to have been a deliberate decision by the members of the government who set up the commission. One can say in favor of this strategy that it avoided the presence of people who had already formed opinions that would lead to prejudgments. On the other hand, it made the commission vulnerable to the government experts who advised it, or to the government-owned companies involved; the latter certainly had many more opportunities to influence the members than specialists outside the government, whose access to the commission's working sessions was merely occasional.

At any rate, the effort represented by the establishment of the High Level Commission seems valid to us. It sets a good precedent. Why not adopt the same procedure as regards other controversial national problems? Why evaluate only the Nuclear Program and not, for example, the Alcohol Program, or the activities of Petrobras or Eletrobras?

The conclusions and recommendations of the commission, however, are disappointing for several reasons. For one thing, it tried to say too much about some issues and not enough about others.

The weakest point in the report seems to us to be the attempt to justify the need for energy generated by nuclear reactors during the coming decade (Angra II is to be finished in 1992 and Angra III in 1994) "so as to ensure the capacity to meet the anticipated demand." As is well known by specialists in the Brazilian energy sector, Eletrobras' plans are undergoing a thorough re-examination and the so-called "Plan 2000," with its revisions, cannot be considered anything more than indicative. It is known that Eletrobras was not basing its supply planning on the Angra II and III plants, despite the fact that they are mentioned in some working documents such as the National Energy Balance Sheet or the Eletrobras Sectoral Recovery Plan, which were drawn up on the basis of rather arbitrary assumptions and have been used frequently in the past to justify projects and investments.

On the question of forecasts for future energy demand, the Commission's own report is contradictory because at one point it stresses the importance of energy conservation programs that it quantifies with certainty at 9,800 megawatts of energy up to the year 2000. How can we be sure that these programs will not be even more effective, either since that is what is happening all over the world or because of the new technologies that are continually being refined in this area?

The report states, at a certain point, that it is anticipated that 3,000 megawatts of thermal origin will be needed per year in 2016 in order to satisfy the market. This is a growth of about 3 percent over the 100,000 megawatts that are supposed to be in use by then. Laying aside the surprising precision of these forecasts for a future that is so distant, what assurance do we have that the thermal complement will not be generated by using natural gas, a possibility that the report virtually failed to consider?

Having accepted these various dubious premises--which, by the way, are not much different than those that were used by the Geisel Administration and by Nuclebras in 1975 to justify the gigantic nuclear program that would have considerably increased our foreign debt if it had been carried out (eight nuclear power plants by 1990!)--,the commission became the prisoner of certain self-imposed conditions, such as that of finishing construction of Angra II and III. The cost of the nuclear program to date, and the expected outlays to complete the two plants are--curiously--minimized because the necessary $7 billion ($4.3 billion already spent) do not include financial costs (!). How shall we characterize this strange form of determining costs?

Despite this fundamental problem on which, in my view, the commission was seriously mistaken, it makes useful comments and recommendations such as proposing a radical reorganization of Nuclebras, a redefinition of the role of the National Nuclear Energy Commission, an increased nationalization--in a general way--of the Nuclear Program and greater emphasis on the training of qualified personnel. It also recommends signing an agreement with Argentina to avoid a "nuclear race" in Latin America.

The commission avoided, however, making a judgment on the centrifugal jet method of enriching uranium, a method that could cost $1 billion additional. Why this timidity in light of the conspicuous failure of this method, especially considering that development of other methods is well-advanced at Brazilian research institutes?

The general impression one gets of the report is that it accepts the difficult and dubious justification that nuclear energy is indispensable for Brazil and that it is necessary to "rescue" the current program; the commission included recommendations of lesser importance in order to accommodate the tastes of all its members.

It is uncertain what consequences the recommendations in the report will have, since many of them are disputable and will not be accepted easily, either by Nuclebras or by the National Nuclear Energy Commission--which the report recommends be dismantled. In fact, the same fate awaits Eletrobras, which would be assigned certain additional responsibilities that it probably would prefer not to have, engaged as it is in hydroelectric projects for which it does not have sufficient funds, nor by [as published] many technicians and scientists who have a different vision of the Nuclear Program.

Furthermore, the financial areas of the government will receive with the greatest skepticism any proposal to invest more funds in a program that, in practice, has been a "bottomless pit" with little possibilities of generating any return for the Treasury.

It could be said that this is the price that has to be paid for a new technology that the country is going to need in the future. Is it, however, perfectly clear that this is the case? Won't there be other ways for Brazil to resolve its energy problems and, if necessary, master the nuclear technology outside the framework of the Nuclebras Program and the close cooperation with Germany?

There are many who believe that these alternative routes exist.

12830/12795
CSO: 5100/2067

JERUSALEM RADIO VIEWS SAUDI MEDIA CALL FOR NUCLEAR WEAPONS

JN201552 Jerusalem in Arabic to the Arab World 1335 GMT 20 Apr 86

["Observation" by 'Ezra Shirazi]

[Text] Dear listeners: Those who follow the Saudi news media may conclude that Saudi news media officials seem to believe that rhetoric, honor, and heroism in the field of writing and information lie in excessively opposing Israel and in instigating against Israel and the Israeli people. The Saudi mass media, whose officials desecrate all the values of an honest press and its noble message of serving peace and coexistence between peoples and religions, daily publish written or broadcast articles and commentaries attacking Israel and peace with Israel. What is even worse and more tragic is that some Saudi information officials exploit religion and religious occasions to not only spread cheap and despicable lies against Israel and the Jewish people in general, but also to foment hatred and division between the Arab and Jewish peoples.

There is no doubt that such information officials do not only perpetrate detested and mean lies, but also distort the image of Islam and its righteous teachings. Moreover, they desecrate its message, whose essence is the same as that of other religions calling for tolerance and brotherhood among peoples and nations. As if this were not enough, the Saudi paper [AL-RIYADH] published an editorial this week announcing that the Middle East has entered the battleground of nuclear weapons and that Israel is now monopolizing this weapon. The paper also urges Arabs to acquire nuclear weapons, asserts that Arabs are compelled to possess these weapons regardless of reasons and results, and that Arabs, no matter how long it takes, will make this a major goal.

It is in this way that the Saudi media are assuming responsibility toward people and the issue of peace. They call on Arabs to have nuclear weapons regardless of reasons and results. Such a call is aimed at involving the region's peoples in a nuclear arms race and into living under nuclear fear and the nightmare of mass nuclear extermination. Saudi Arabia and its mass media behave as if the region doesn't have enough bloodshed and disaster caused by successive wars with conventional weapons. The Saudi mass media are not satisfied with all this blood, disaster, and destruction, as well as with the daily and annual waste of energy of Arabs and Israelis in arming

themselves with conventional weapons. They urge people to waste more energy by arming themselves with nuclear weapons.

The least we can say about such a Saudi call is that it is an irresponsible and criminal one aimed against our region's peoples. The logic behind this call suffers from color blindness in both thinking and vision, because such a call ignores principles of negotiation, tolerance, and peace. It only sees confrontation, continued dispute, and the escalation of confrontation to the point of introducing nuclear weapons into our region, along with nuclear confrontation and mass extermination, God forbid.

The Saudi call also ignores Israel's affirmation and pledge by its present and former governments that it will not be the first to introduce nuclear weapons into the Arab-Israeli dispute. It also ignores that Israel at the United Nations and elsewhere has officially called on Arab countries, as well as all Middle Eastern countries, to reach a treaty or a collective charter for keeping the region free of nuclear weapons.

/9274
CSO: 5100/4509

EGYPT

PAPERS REPORT RADIATION LEAK AT CAIRO UNIVERSITY

Cobalt 'Device' Cited

NC280604 Cairo MENA in Arabic 2255 GMT 27 May 86

[Text]Cairo, 27 May (MENA)— In their 28 May editions, Cairo papers report that there has been a radiation leak from a cobalt device stored behind the commerce faculty building at Cairo University. The science faculty has been keeping the device for use in scientific research. The papers explain that the science faculty's Department of Natural Physics was keeping the cobalt bomb [qunbulat al-kubalt] device, in a room behind the commerce faculty building at Cairo University. The commerce faculty wanted to use the room for student examinations, so the device was thrown outside. Then, 400 kg of the 2,000 kg of lead that covered the radioactive material was stolen and there was also an attempt to lift the device from its place, all of which led to a radiation leak. The radioactive materials were then buried in cement and guards were posted around the 25-square-meter area affected by radiation. The papers report that studies are now underway to determine the level of radiation and to take the necessary measures to prevent further contamination.

Radiation Leak Denied

NC281344 Cairo Domestic Service in Arabic 1230 GMT 28 May 86

[Statement issued by the Egyptian Nuclear Energy Organization in Cairo on 28 May — Read by announcer]

[Text] A committee headed by the chairman and deputy chairman of the Nuclear Energy Organization, which also included the chairman of the Nuclear Safety and Organization Department and six specialists in the field of radioactive safety and control, inspected the site of the Cobalt-60 source [masdar] belonging to the Science College of Cairo University today. A committee was immediately formed to carry out the necessary tests for radioactivity. The measurements were made in the area surrounding the source and at various distances from it with the latest equipment. The committee emphasizes that there has been no radioactive leak or contamination. The Nuclear Energy Organization would like to state that the situation is quite safe, and that there is no cause for alarm.

Radiation 'Below Permissible Levels'

NC281615 Cairo Domestic Service in Arabic
1500 GMT 28 May 86

[Text] The Egyptian Atomic Energy Organization issued a statement today in which it emphasized that the situation is quite safe and satisfactory in light of the measurements that had to be made on the Cobalt-60 source (masdar] belonging to the Science College of Cairo University. Dr Salah Hashish, chairman of the Atomic Energy Organization, told our correspondent that his group sent a committee of its experts to Cairo University yesterday and again today. They carried out the necessary tests for radioactivity on the cobalt unit [wahdat] itself, the room and the surrounding areas, and places frequented by students. Dr Hashish pointed out that readings for radioactivity in these locations were below permissible levels.

The committee has submitted a preliminary report on its findings to the ministers of electricity, health, and higher education, and to the rector of Cairo University. Its final report will be prepared after a special meeting presided over by the minister of electricity, Eng Mahir Abazah. Dr Hashish emphasized that no one has been affected by radioactivity, and that the [cobalt] device is protected by a thick lead shield. He added that the theft of the shield could not have resulted in any increased doses of radioactivity for those near or far from the source.

Mubarak Contacts Officials on Device

NC290929 Cairo MENA in Arabic 0750 GMT 29 May 86

[Text] Cairo, 29 May (MENA) — President Husni Mubarak has telephoned Dr Hilmi Nammar, rector of Cairo University, to inquire about the situation pertaining to the radioactive cobalt device used by the faculty of science for research. The president requested that all measures needed to deal with the device should be taken to guarantee that no radiation would leak and to protect the students.

At a news conference, Health Minister Hilmi al-Hadid asserted that no radioactive material leaked out of the device and that there is no danger to the students. Minister of Higher Education Fathi Muhammad 'Ali held a meeting earlier today with Electricity Minister Mahir Abazah and Dr Hilmi al-Hadidi to be reassured on the situation and to take the necessary measures to deal with the situation. Four scientific groups moved to the scene of the incident and measured radiation levels, leak percentages, and levels of exposure after covering the device with a new 400-kg lead case to avoid any possibility of leakage or radiation exposure. As a precautionary measure, all 24 persons working in the area were listed and the area was placed under guard to prevent entry. Tests proved that radiation is below the hazardous level and necessary measures are now being taken to move the device to another place, which is being prepared according to all the safety specifications designed to preserve radioactive cobalt devices inside a lead casing. A scientific committee from the Health Ministry, consisting of Dr 'Isam al-Din Bakir, director of the Health Ministry's Executive Bureau; and Dr Nasif Budayr al-'Asi, head of the radiation exposure measuring division at the National Center for Radiation Technology and Research, performed a complete survey of the area. The committee submitted a scientific report asserting that:

1. The dose of radiation to which any student might have been exposed when the radiation source was left without its secondary lead casing would have been equivalent to a typical x-ray test and would have absolutely no effect on pregnant women.

2. Since the case of the radioactive device was stolen, experts at the Radiation Protection Executive Bureau of the Health Ministry, who examined the device, made a new lead casing and the radiation source now is completely safe.

3. Once the radioactive source was moved back into the room, a complete test was made of the surrounding area and proved that it is completely free of contamination.

4. Tests made before covering the device with a new secondary lead casing proved that the radiation level was below the internationally permissible limits. The minimum permissible level per week for people working with radioactive materials is 100 mm/rem, and for the general public it is 10 mm/rem. To explain this point, the report asserted that if a student remained in the vicinity of the radioactive device for one hour, the doze of exposure would not exceed 6 mm/rem/hour, which is completely harmless. If a student was within one meter of the radioactive source, the level of exposure would not exceed 1/2 mm/rem/hour, while if a student was within 2 meters of the device, no exposure would take place.

/9274
CSO: 5100/4611

EGYPT

BRIEFS

GOVERNMENT RECONSIDERING NUCLEAR POWER--Cairo, 22 May (MENA)--Prime Minister Dr 'Ali Lutfi has declared that the government has decided to wait and reconsider the projects to produce electricity from nuclear energy in light of the accident at the Chernobyl nuclear reactor. In a statement following his meeting today with Engineer Mahir Abazah, minister of electricity and energy, to review the power sector's achievement will increase electricity production by using coal. It will solve all problems encountered in accomplishing this. Moreover, the government will pay special attention to using solar power instead of electricity in the upcoming 5-year development plan. The ministries of electricity, industry, and war production are working together for this purpose. [Excerpt] [Cairo MENA in Arabic 1400 GMT 22 May 86 NC] /9274

CSO: 5100/4611

ISRAEL

RELATIVE SAFETY OF ISRAELI REACTORS CLAIMED

Tel Aviv YEDI'OT AHARONOT in Hebrew 2 May 86 pp 1, 6

[Article by Gaby Baron and Tzvi Singer: "No Reason to Fear a Catastrophe at Israeli Reactors"]

[Text] Could a catastrophe like the one that occurred at the Soviet nuclear reactor of Chernobyl happen at the reactors currently working in Israel, and should we conclude from it that Israel should in the future refrain from acquiring nuclear power plants?

As in other western countries in which the dispute between the environmentalists and the ecological preservation movements (such as the "Greens" in Germany), and the supporters of nuclear power has been renewed, it appears that in Israel, too, opinions vary on the subject.

"Israelis have no reason to fear that a nuclear catastrophe like Chernobyl may happen here," says Knesset member Professor Yuval Ne'eman, currently at the University of Texas in Austin. The relation between the power of the Soviet reactors and that of the Israeli reactors is like that between a train engine and a steam kettle... Our research reactors are miniscule and are built differently." According to him, despite all the talk about purchasing nuclear power plants, "we do not have any chance of acquiring such reactors."

During Prime Minister Shim'on Peres' visit to France, the possibility of France selling two nuclear power plants to Israel was discussed. The minister of economy and planning, Gad Ya'aqobi, yesterday told our correspondent that Israel must continue the negotiations on the purchase and erection of nuclear power plants. However, according to him, "Israel must now proceed more carefully and cautiously. We will have to reconsider the optimal location for the reactors and safety precautions, in order to preclude any danger of radioactive leakage."

Energy Minister Moshe Shahal announced that the topic of purchasing reactors is now exclusively at the theoretical stage, and that there is no actual purchase deal on the agenda."

Dr Amnon Eynav, head of the nuclear power plants project at the Ministry of Energy, added that Israel is not a signatory of the treaty against the

proliferation of nuclear arms and thus is not obligated to allow international supervision of its two reactors. According to him, it should try to find ways of acquiring a nuclear power reactor without in exchange having to permit international monitoring of all the reactors in the country.

Like Professor Ne'eman, Dr Eynav, too, said that the two research reactors existing in Israel are relatively tiny compared to the Soviet and American reactors.

The French reactors, according to him, are different from the Soviet reactor, and are equipped with safety systems.

As opposed to all those who support, in principle, the acquisition of nuclear reactors, Knesset member Ya'ir Tzavan requested that, in view of the Soviet catastrophe, a parliamentary commission of investigation should be set up as soon as possible to examine all the aspects of establishing nuclear plants in Israel. "The Soviet disaster makes it necessary to study the issue in depth, especially in the light of the conditions prevailing in Israel, which is a small and densely-populated country. The prime minister's frenetic haste to sign a reactor deal with France has not been subjected to either parliamentary oversight or national public debate worthy of its name."

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BRIEFS

SYRIA REPORTED BUILDING CHERNOBYL-TYPE REACTOR--Energy and Infrastructure Minister Moshe Shahal has revealed that Syria is currently in the midst of a process of establishing a nuclear power station similar to the one in Chernobyl. He said Egypt plans to establish five nuclear reactors of different types. Minister Shahal made these remarks during a discussion in the Knesset's Economic Committee on the issue of the desirability of purchasing reactors for Israel. Mr Shahal noted that from the security point of view any accident in a neighboring country will endanger us just as much as a reactor in Israel. [Text] [Jerusalem Domestic Service in Hebrew 1300 GMT 21 May 86 TA] /9274

FRANCE TERMINATES NUCLEAR TALKS--France has terminated negotiations with Israel over the sale of a nuclear reactor due to pressure applied by French companies that have commercial ties with Arab countries and fear the Arab boycott. This was reported by the energy minister to the Knesset Public Audit Committee. Our correspondent Elihu Ben-On reports that the committee was discussing the building of nuclear reactors following the State Comptroller's report. [Text] [Jerusalem Domestic Service in Hebrew 1300 GMT 28 May 86 TA] /6662

FRENCH DENIALS ON NUCLEAR PLANT--France says there is no truth to reports that negotiations with Israel on the possible sale of nuclear power plants have been suspended because of fears of an Arab boycott. The Voice of Israel's Paris correspondent quotes a source close to the French Foreign Ministry as saying that negotiations never got under way. The sourbe added that Prime Minister Peres discussed Israel's energy problems during his visit to Paris last fall, but no specific emphasis was given to nuclear power plants. [Text] [Jerusalem Domestic Service in English 1700 GMT 31 May 86 TA] /9274

CSO: 5100/4511

PAKISTAN

INDIA, ISRAEL SAID TO PLAN ATTACK ON NUCLEAR PLANT

GF281345 Lahore JANG in Urdu 24 May 86 p 1

[Text] London (JANG Foreign Desk) — A joint Indo-Israel plan has been finalized to attack the Pakistani nuclear plant at Kahuta. This attack may take place at any time. Israel believes that Pakistan is now quite close to manufacturing an atomic bomb and that once it is made, it would naturally help the Arab countries.

A report published in London has confirmed the news that the Government of Pakistan has strengthened its security measures around the nuclear installations at Kahuta. Air defense arrangements have also been carried out at these installations.

The report quotes an interview given by an Israeli leader which states that India and Israel, in their mutual interest, have devised a preemptive air attack on the Kahuta nuclear plant. The report adds that these two countries have a comprehensive plan to sabotage the Pakistani nuclear program.

This plan came to light when a Pakistani Air Force pilot trainee was arrested on charges of spying for Israel. The report adds that the Israeli intelligence department got this pilot enlisted in a Gulf emirate Air Force.

The officer had been sent to Pakistan twice to survey the Kahuta area. When he went to Pakistan for a third time he was arrested by the Pakistani authorities at the airport. A large amount of cash was found on his person. He was taken to Peshawar for interrogation but managed to escape with the help of a government servant. A large-scale hunt was launched by the government and he was arrested again as he tried to cross the border into India.

The report adds that Pakistani authorities suspect that a large number of Israeli agents, who have been trained in the United States, have infiltrated into Pakistani Government organizations. According to these sources, Israeli intelligence recruits agents from Third World countries who are then trained in the United States.

The report also added that an officer from the (Houston) American Academic Department revealed in a seminar held in Washington that Israel was doing its best to find out everything about Pakistan's nuclear capabilities and nuclear installations. A paper read at the seminar on this subject was later widely distributed in India.

The other day, when they attacked the Palestinian camps in Tunis, Israeli pilots made Pakistani authorities further tighten their security measures around Kahuta. Pakistani authorities do not reject the possibility of India and Israel jointly attacking Pakistan at any time.

Technical experts in Islamabad say that Israeli bombers would have to fly a distance of 1,000 miles without Indian cooperation. The possibility is, they say, that Israeli aircraft would first fly to India, then after refueling make their way to Kahuta, which would take them only a few minutes.

India would not attack Kahuta by itself, the experts say.

Pakistan, for its part, has installed ground-to-air missiles around Kahuta and a detachment of a commando force has also been assigned to look after the installations.

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CSO: 5100/4746

PAKISTAN

BRIEFS

OFFICIAL ON RADIATION LEVEL--Chairman of the Pakistani Atomic Energy Commission Munir Ahmed Khan has said there has been no significant rise in radiation levels in Pakistan territory or its atmosphere because Pakistan is situated well away from Chernobyl. Speaking to a news conference in Islamabad today, he said that as of the 10th of this month there was no noteworthy increase in radiation. However, there was a moderate increase from the 11th to the 17th of this month, which has already started coming down. He said a thorough analysis of the specimens of food and physical matter shows that so far there has been only a slight increase in radiation levels, which is not so significant. He said sophisticated instruments were used in measuring the level of radiation. [Text] [Karachi Overseas Service in Urdu 0800 GMT 25 May 86 BK] /9274

CSO: 5100/4746

NIGER

BRIEFS

URANIUM PRODUCTION TO CONTINUE--Niamey, 22 May (AFP)--Uranium production in Niger is to continue, the managing directors of uranium exploiting companies assured yesterday. The managing directors of the Akouta Mining Company (COMINAK), the Air Mining Company (SOMAIR), and the General Nuclear Materials Company (COGEMA), who came to brief President Seyni Kountche on the outcome of the COMINAK and SOMAIR boards of governors meeting, stated that "despite the difficulties caused by the crisis" the accounts of the 1985 exercise were approved, and the companies ended the year "under acceptable conditions." [Text] [Paris AFP in English 2100 GMT 22 May 86 AB] /9274

CSO: 5100/25

NIGERIA

BRIEFS

RESEARCHERS' INTEREST IN NUCLEAR ENERGY--Nigeria has no plan to go nuclear until government approves the establishment of the proposed National Energy Commission, Professor Tam David-West has said. According to the minister, twenty-six applications have so far been processed from researchers in the country seeking the ministry's assistance in the form of training courses, fellowship, symposium and employment in various fields of useful applications of nuclear energy. He added that as a member of the International Atomic Energy Agency (IAEA), his ministry, will reorganise and intensify its efforts on energy as soon as government approves the commission. Professor David-West also said that to ensure the enforcement of safety standards in the country, National Electric Equipment Testing laboratory, (NEETL) now under construction in Jos would be completed during the fifth development plan period.
[Text] [Lagos DAILY TIMES in English 3 May 86 p 24] /8309

CSO: 5100/27

PORTUGAL

BRIEFS

NO SHORT-TERM NUCLEAR PLANT--Prime Minister Cavaco Silva affirmed yesterday in London that his government "only agreed to review the National Energy Plan," explaining that his government does not intend to grant any "short-term or medium-term" authorization for the installation of a nuclear power plant in Portugal. The prime minister thus clarified statements that were attributed to him during the interview he granted the BBC in the British capital. It should be noted that Cavaco Silva had admitted the possibility of a nuclear power plant in Portugal "in the near future," an issue which he had said was being studied. Cavaco Silva emphasized that the only thing in existence is "the previous' government's White Paper, and the present government only agreed to review these projects." He added that "there is absolutely nothing in relation to the nuclear option." [Excerpts] [Lisbon DIARIO DE NOTICIAS in Portuguese 14 May 86 p 2] /13045

CSO: 5100/2526

TURKEY

NUCLEAR REACTOR TALKS HALTED

TA261520 Ankara ANATOLIA in English 1510 GMT 26 May 86

[Text] Ankara, 26/5 (A.A.) — Talks related to the first nuclear power plant of Turkey at Mersin, Akkuyu came to a halt.

While the talks underway with the Canadian Atomic Energy of Canada Ltd (AECL) company were stopped, a preliminary agreement between the Turkish Electricity Authority, a state economic enterprise responsible for the generation, supply and transmission of electric power in Turkey, and the AECL, on the basis of the "build operate transfer" model expired in March.

The A.A. reporter was informed that the high-level talks on a joint funded company to carry on the nuclear power plant project came to a halt because the Turkish Government refused to issue guarantee a 1.1 billion Canadian dollar loan to be extended by the Canadian Government for the Akkuyu nuclear power plant.

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END